

IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently Amended) An isolated A nucleic acid molecule, comprising:
a nucleic acid sequence which encodes a[(n)] genetically engineered mutant of
an Aequorea coerulescens non-fluorescent protein of SEQ ID 2 whose amino acid
sequence differs from an amino acid sequence of SEQ ID 2 by at least an amino acid
substitution at one of residues 222, 220 and 148,

wherein the substitution is selected from the group consisting of E222G
(substitution of Glutamic Acid at residue 222 with Glycine), Y220L, H148T and H148S,

wherein said mutant has fluorescent properties.

~~peptide, selected from:~~

~~(a) a nucleic acid which encodes a protein comprising an amino acid sequence~~
~~SEQ ID NO: 02;~~

~~(b) a nucleic acid comprising a nucleotide sequence SEQ ID NO: 01.~~

2. (Currently Amended) A nucleic acid molecule of claim 1, wherein the
mutant further comprises one or more amino acid substitutions selected from the group
consisting of V11L, N19D, F64L, V68A, K101E, E115K, N121S, H148Q, F165L, E172K,
E172A, T206A, F221L and K238Q.

~~An isolated nucleic acid selected from the group consisting of:~~

~~(a) a nucleic acid derived from the nucleic acid of claim 1 using at least one of~~
~~site-directed mutagenesis and/or random mutagenesis;~~

~~(b) a nucleic acid coding for an amino acid sequence selected from SEQ ID NOs:~~
~~04, 06, 08, 10, 12, 14, 16, 18, 20, 22, or 24; or~~

~~(c) a nucleic acid comprising a nucleotide sequence selected from SEQ ID NOs:~~
~~03, 05, 07, 09, 11, 13, 15, 17, 19, 21, or 23.~~

~~(d) a nucleic acid differing from the nucleic acid of (a) above due to degeneracy~~
~~of the genetic code~~

3. (Currently Amended) ~~An isolated~~ A nucleic acid molecule of claim 2, wherein said nucleic acid molecule encodes a fluorescent protein comprising an amino acid sequence selected from the group consisting of SEQ ID NOs: 04, 06, 08, 10, 12, 16, 18, 20, 22 and 24.
4. (Currently Amended) An expression cassette comprising
(a) a transcriptional initiation region functional in an expression host;
(b) the nucleic acid molecule according to claim 1 of claim 2; and
(c) a transcriptional termination region functional in said expression host.
~~(b) regulatory elements necessary for expression of the nucleic acid in the cell.~~
5. (Currently Amended) An expression cassette comprising
(a) a transcriptional initiation region functional in an expression host;
(b) the nucleic acid molecule according to claim 2 of claim 3; and
(c) a transcriptional termination region functional in said expression host.
~~(b) regulatory elements necessary for expression of the nucleic acid in the cell.~~
6. (Currently Amended) A cell, or progeny thereof, comprising the expression cassette ~~[[of]]~~ according to claim 4 as part of an extrachromosomal element or integrated into the genome of a host cell as a result of introduction of said expression cassette into said host cell.
7. (Currently Amended) A cell, or progeny thereof, comprising the expression cassette ~~[[of]]~~ according to claim 5 as part of an extrachromosomal element or integrated into the genome of a host cell as a result of introduction of said expression cassette into said host cell.
8. (Currently Amended) An isolated ~~peptide~~ fluorescent protein encoded by the nucleic acid molecule of claim 1 ~~[[2]]~~.

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9. (Withdrawn- Currently Amended) An antibody binding specifically to the peptide fluorescent protein of claim 8.
10. (Currently Amended) A fusion peptide incorporating the peptide fluorescent protein of claim 8.
11. (Currently Amended) A transgenic cell, or progeny thereof, comprising the nucleic acid molecule according to claim 1, organism capable of expressing the peptide of claim 8.
12. (Currently Amended) A method for labeling or detecting a biological molecule comprising coupling said biological molecule to the peptide fluorescent protein of claim 8.
13. (Currently Amended) A method for labeling or detecting a cell or cell organelle comprising production of the peptide fluorescent protein of claim 8 in the cell.
14. (Currently Amended) A method for detecting a gene expression comprising production of the peptide fluorescent protein of claim 8 in the cell.
15. (Currently Amended) An isolated peptide fluorescent protein encoded by the nucleic acid molecule of claim 2 [[3]].
16. (Withdrawn- Currently Amended) An antibody binding specifically to the peptide fluorescent protein of claim 15.
17. (Currently Amended) A fusion peptide incorporating the peptide fluorescent protein of claim 15.

18. (Currently Amended) A transgenic cell, or progeny thereof, comprising the nucleic acid molecule according to claim 2, ~~organism capable of expressing the peptide of claim 15.~~
19. (Currently Amended) A method for labeling or detecting a biological molecule comprising coupling said biological molecule to the peptide fluorescent protein of claim 15.
20. (Currently Amended) A method for labeling or detecting a cell or cell organelle comprising production of the peptide fluorescent protein of claim 15 in the cell.
21. (Currently Amended) A method for detecting a gene expression comprising production of the peptide fluorescent protein of claim 15 in the cell.
- 22-23. (Canceled)
24. (Currently Amended) An expression cassette comprising
(a) a transcriptional initiation region functional in an expression host;
(b) the nucleic acid molecule according to claim 3 ~~of claim 23;~~ and
(c) a transcriptional termination region functional in said expression host.
~~(b) regulatory elements necessary for expression of the nucleic acid fragment in the cell.~~
25. (Original) A cell, or progeny thereof, comprising the expression cassette of claim 24.
26. (Currently Amended) An isolated peptide fluorescent protein encoded by the nucleic acid ~~fragment~~ molecule of claim 3, ~~[[23.]]~~
27. (Withdrawn- Currently Amended) An antibody binding specifically to the peptide fluorescent protein of claim 26.

28. (Currently Amended) A fusion peptide incorporating the peptide fluorescent protein of claim 26.
29. (Currently Amended) A transgenic cell, or progeny thereof, comprising the nucleic acid molecule according to claim 3, ~~organism capable of expressing the peptide of claim 26.~~
30. (Currently Amended) A method for labeling or detecting a biological molecule comprising coupling said biological molecule to the peptide fluorescent protein claim 26.
31. (Currently Amended) A method for labeling or detecting a cell or cell organelle comprising production of the peptide fluorescent protein of claim 26 in the cell.
32. (Currently Amended) A method for detecting a gene expression comprising production of the peptide fluorescent protein of claim 26 in a cell.
33. (New) A nucleic acid molecule of claim 1, comprising a nucleic acid sequence encoding a genetically engineered functional fluorescent protein that has an amino acid sequence at least 95% identical to an *Aequorea coerulescens* non-fluorescent protein of SEQ ID 2.